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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/367,623	11/23/1999	CHRISTOPHE LORIN	RCA89726	4576

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EXAMINER

HAROLD, JEFFEREY F

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 02/09/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/367,623

Applicant(s)

LORIN, CHRISTOPHE

Examiner

Jefferey F. Harold

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-10 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 November 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.84(o). The drawings must show every feature of the invention specified in the claims. Therefore, descriptive legends must be shown for the elements disclosed in the drawings. No new matter should be entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. ***Claims 1, 3-7 and 10*** are rejected under 35 U.S.C. 102(b) as being anticipated by Kakuishi (United States Patent 5,287,406).

Regarding **claim 1**, Kakuishi discloses a hybrid circuit having a converting function. In addition, Kakuishi discloses an apparatus for automatically matching the levels of the signal exchanged between first apparatus and a second apparatus which communicates with the first apparatus via a transmission line characterized in that:

the signal which comes from the transmission line (via transformer 11) and is received by the first apparatus (figure 6) is digitized;

on the basis of the digital data representing the signals exchanged with the transmission line, an estimate is made of the inherent transfer function (18) equal to the

ratio of the signal received by the first apparatus to the signal transmitted by the first apparatus;

each of the exchanged signals is respectively multiplied by a suitable gain (12 and 13) determined on the basis of the estimated value of the transfer function, as disclosed at column 5, line 53 through column 6, line 17 and exhibited in figure 6.

Regarding **claim 3**, Kakuishi discloses everything claimed as disclosed above (see claim 1), in addition Kakuishi discloses wherein the gain of the signal received by the first apparatus is chosen so that the component of the signal transmitted by the second apparatus in the signal received by the first apparatus is independent of the impedance of the transmission line, as disclosed at column 8, lines 32-58 and exhibited in figure 6.

Regarding **claim 4**, Kakuishi discloses everything claimed as applied above (see claim 1), in addition Kakuishi discloses wherein the gain of the signal transmitted by the first apparatus is chosen so that the component of the signal transmitted by the second apparatus in the signal received by the second apparatus is independent of the impedance of the transmission line, as disclosed at column 8, lines 32-58 and exhibited in figure 6.

Regarding **claim 5**, Kakuishi discloses everything claimed as applied above (see claim 3), in addition Kakuishi discloses wherein the calculation method implements an inherent identification algorithm.

Regarding **claim 6**, Kakuishi discloses a device for automatically matching levels of signals exchanged between a first apparatus and a second apparatus communicating via a transmission line, wherein:

a analog/digital converter (15) capable of digitizing a signal entering the first apparatus;

a digital/analog converter (16) capable of converting a signal transmitted by the first apparatus;

a calculation block (18) intended to estimate the ratio of the incoming signal to the signal transmitted by the first apparatus, and to determine the gains needed for matching the levels of the signals transmitted and received by the first apparatus, the gains being dependent on the said ratio, as disclosed at column 5, line 53 through column 6, line 17 and exhibited in figure 6.

Regarding **claims 7 and 10** they are interpreted and thus rejected for the reasons set forth above in the rejection of claims 1 and 2-6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 8 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakuishi in view of well known prior art (MPEP 2144.03).

Regarding **claims 8 and 9**, Kakuishi disclose everything claimed, as applied above, (see claims 5 and 8 respectively), however, Kakuishi fails to disclose a dsp circuit that utilizes a LMS algorithm. However, the examiner takes official notice of the fact that it was well know in the art to provide dsp circuit that utilizes a LMS algorithm.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kakuishi by specifically providing dsp circuit that utilizes a LMS algorithm, for the purpose of adaptively adjusting the gain.

Citation of Pertinent Art

4. The Prior art of record and not relied upon is considered pertinent to applicant's disclosure.

Cannan et al. (United States Patent 4,984,265), device for forming the hands-free function in a telephone set, associating the gain switching and echo suppression.

Allowable Subject Matter

5. **Claims 11 and 12** are allowable.
6. The following is an examiner's statement of reasons for allowance:

Regarding **claim 11**, the prior art of record discloses a process for automatically matching the levels of the signals exchanged between a first device and a second device that communicates with the first device via a transmission line, consisting of: receiving and digitizing by the first device the signal which comes from the transmission line; estimating, on the basis of the digital data representing the signals exchanged with

the transmission line, the transfer function equal to the ratio of the signal received by the first device to the signal transmitted by the first device; however, the prior art of record failed to disclose or fairly suggest a transfer function K with K comprising $OUT2/IN1 = K(Z_L) + \varepsilon$ where $K(Z_L) = Z_L / (2 \times (Z_L + 2 \times R_1))$ and Z_L represents the impedance of the transmission line, while R_1 represents the source impedance of the transmission line, the following line, the following are calculated: for the transmitter signal, the first gain $G1$ comprises $G1(Z_L) = 1 / (1 - 2 \times K(Z_L))$ and for the received signal, the second gain $G2$ comprises $G2(Z_L) = 1 / (1 - 2 \times K(Z_L))$, and multiplying each of the exchanged signals, respectively, by a suitable gain determined on the basis of the estimating of a value of the transfer function (K).

Regarding **claim 12**, the prior art of record discloses a device for automatically matching the levels of signals exchanged between a first apparatus and a second apparatus communicating via a transmission line, characterized in that it has: an analogue/digital converter capable of digitizing a signal entering the first apparatus, a digital/analogue converter capable of converting a signal transmitted by the first apparatus, a calculation block intended to estimate the ratio of the incoming signal to the signal transmitted by the first apparatus, and to determine the gains needed for matching the levels of the signals transmitted and received by the first apparatus, the gains being dependent on a transfer function (K) equal to the ratio of the incoming signal received by the first apparatus to the signal transmitted by the first apparatus, however, the prior art of record fails to disclose wherein the estimate of the transfer function (K) equal to the ratio of incoming signal received by the first apparatus to the

signal transmitted by the first apparatus, the estimate of the transfer function (K) comprising $OUT2/IN1 = K(Z_L) + \varepsilon$ where $K(Z_L) = Z_L / (2x(Z_L + 2 \times R_1))$ and Z_L represents the impedance of the transmission line, while R_1 represents the source impedance of the transmission line, the following are calculated: for the transmitter signal, the first gain $G1$ comprises $G1(Z_L) = 1 / (1 - 2xK(Z_L))$ and for the received signal, the second gain $G2$ comprises $G2(Z_L) = 1 / (1 - 2xK(Z_L))$.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jefferey F. Harold whose telephone number is (703) 306-5836. The examiner can normally be reached on Monday-Friday 9:30am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4800.



JFH
January 27, 2004


MINSUN OH HARVEY
PRIMARY EXAMINER